PART I

Chapter 1.1 EXECUTIVE SUMMARY

The 2004 305(b) and 303(d) Integrated Report describes the water quality conditions in the Commonwealth of Virginia during the time period beginning January 1, 1998 through December 31, 2002. The primary purpose of this report is to satisfy the water quality reporting requirements of the Commonwealth of Virginia under Sections 305(b), 303(d), 106, 314 and 319 of the Federal Clean Water Act and the Virginia Water Quality Monitoring, Information and Restoration Act.

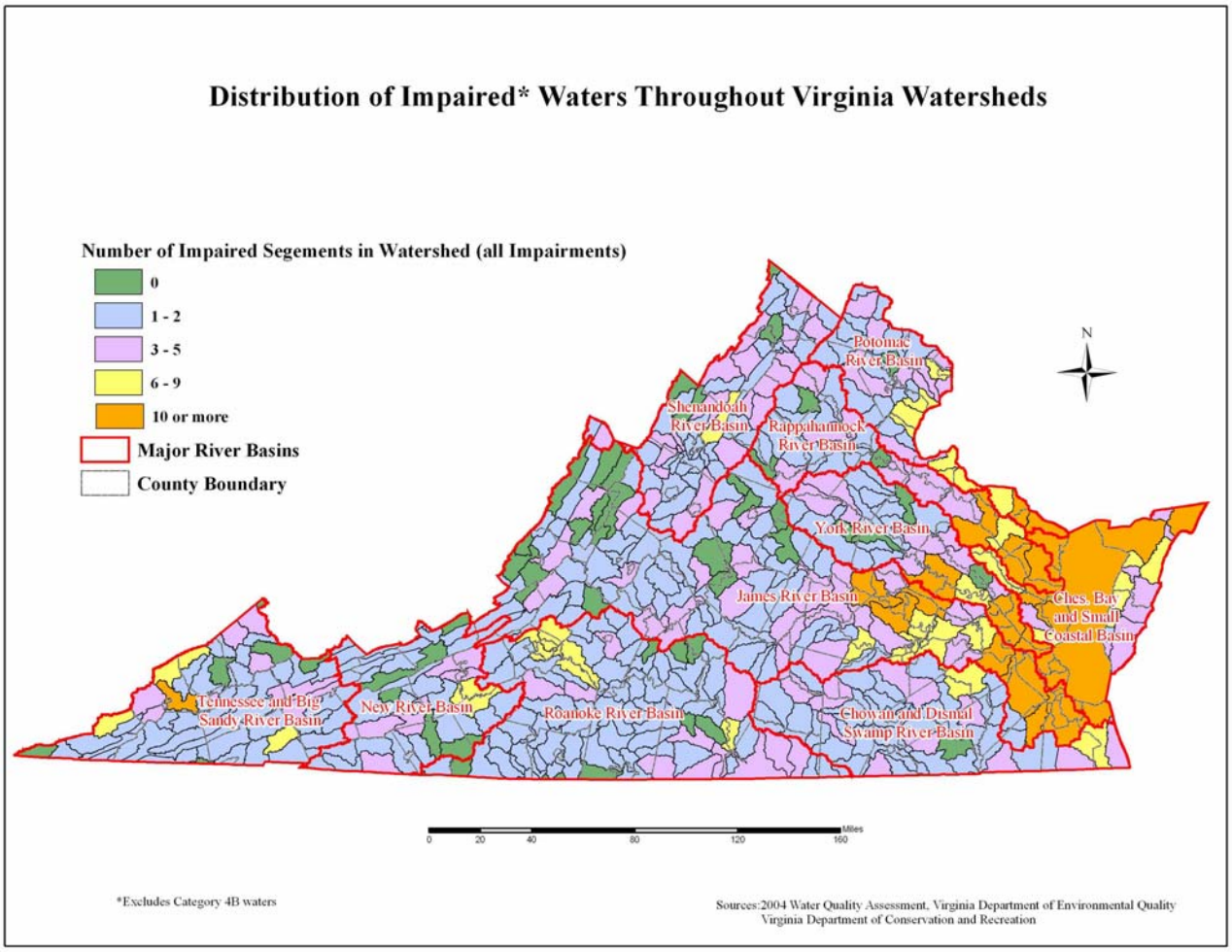
Overview of Results

Impaired area in rivers and streams increased from 4,838 (linear) miles in the year 2002, to 6,948 miles in 2004. Impaired area in estuaries increased from 1,689 square miles in 2002, to 1,907 square miles in 2004. Impaired area for lakes decreased due to adjustments to state boundaries through lakes shared with adjacent states. It is important to note that impaired waters from previous assessments continue to be counted as impaired in 2004 even if they were not monitored during the current reporting period. For this reason, ratios of impaired area to monitored area cannot depict an accurate statewide snapshot of the current percentage of impaired waters. The Impaired Watershed Distribution Map (Figure 1.1) is a more accurate qualitative snapshot of the quality of surface waters in Virginia. For the 2004 assessment, 442 out of 494 watersheds contained at least one impaired water (Figure 1.1-1).

0 impairments: 52 watersheds, 10.5%
1 - 2 impairments: 279 watersheds, 56.5%
3 - 5 impairments: 109 watersheds, 22.1%
6 - 9 impairments: 30 watersheds, 6.1%
10 or more impairments: 24 watersheds, 4.9%

A history of impaired area by waterbody type is provided in Table 1.1-2. In the past, the number of new listings of those impaired waters that need a Total Maximum Daily Load (TMDL) due to human-related causes for designated uses other than shellfish consumption have been compared with prior assessments. Segments varied considerably in size, especially when compared to those listed in the 1990's. For consistency from one assessment to the next Table 1.1-2 lists impaired area found in Tables 1.1-3, 1.1-4, and 1.1-5.

FIGURE 1.1-1 Impaired Watersheds Distribution Map



This map can be downloaded at http://www.deq.virginia.gov/wqa

Table 1.1-2 Impaired Area Identified Per Assessment Cycle By Waterbody Type 1996 - 2004

Waterbody Type	1996	1998	2002	2004
Estuaries (Sq. Miles)	506	437	1,689	1,907
Rivers & Streams (Miles)	2,016	2,611	4,838	6,948
Lakes (Acres)	17,141	0	115,558 [1]	89,894

[1] Area included lakes shared by Virginia and North Carolina. Additional 25,664 acres determined to be in North Carolina and removed from Virginia's 2004 total impaired acreage.

Assessment Method Used in This Report

DEQ has incorporated the Integrated Reporting guidance the U.S. Environmental Protection Agency (EPA) developed in 2003 into the 2004 assessment. It is substantially different from previous assessments and is designed to integrate or combine the 305b overall assessment of Virginia's waters and separate out those waters impaired and needing a TMDL as per 303(d). The EPA 2004 Integrated Report guidance and Assessment Database (ADB V2.1) has 5 different categories. Every water or "assessment unit" (AU) has been placed in the lowest ranking category applicable to any of the six designated uses they were assessed for. Below are the US EPA defined Categories:

- **Category 1**: Water fully supports all designated uses.
- **Category 2**: Water fully supports some designated uses, but there is either insufficient or no information regarding the remaining designated uses.
- **Category 3**: There is insufficient information to determine if designated uses are being met.
- **Category 4**: Waters are impaired or threatened but do not need a TMDL.
- **Category 5**: Waters are impaired and do need a TMDL.

The EPA Integrated Report guidance allows the states to subdivide the federal Categories in order to address state programmatic needs. Virginia established subcategories for most EPA categories. See Chapter 2.2 of this report for a description of Virginia defined subcategories and other information on the methodologies used in the assessment.

Unlike previous reports, the "fully supporting but threatened" category has not been used. EPA defines threatened waters as those waters that are predicted to not meet Water Quality Standards during the next 305(b) reporting cycle and therefore considered needing a TMDL. DEQ believes impairment should be confirmed by monitoring data that is compared to Water Quality Standards criteria prior to any listing for TMDL development. For 2004, Virginia will not declare any waters as threatened due to the inability to "predict" impairment as per the EPA definition of threatened waters. Instead, Virginia has used the "observed effects" classification found in Category 2 or 3 for waters that may indicate water quality problems. These assessments are based on evaluated and/or other related data; especially those associated with nonpoint source impacts. See Chapter 2.2 for additional information on the determination of waters with observed effects. As part of the ongoing assessment process, follow-up monitoring of these waters with observed effects as resources allow should provide better, more conclusive data for future assessments. Additional detail on impairment causes can be found in Chapter 3.1 and overviews of the assessment in each river basin are detailed in Chapter 3.2.

Results – Rivers and Streams

This report presents the results of the assessment of water quality in approximately 11,384 (22.5%) of the total 50,527 miles of the state's free-flowing streams and rivers for which sufficient data was available to assess at least some designated uses. The remaining stream miles were evaluated as insufficient data to determine if designated uses are being met.

Table 1.1-3 presents the results of the 2004 assessment for the river miles assessed.

Table 1.1-3 Assessment Results for Rivers

Degree of Use Support	Water Type	Total Miles *(Rounded to the Nearest Whole Number*	(%)
Supports Uses (EPA Categories 1 and 2)	River (mi.)	4,436	**8.8%**
Insufficient Data (EPA Category 3)	River (mi.)	39,144	**77.5%**
Impaired (EPA Categories 4 and 5)	River (mi.)	6,948	**13.8%**
Total Size	River (mi.)	50,527	**100%**

The leading cause of impairment of designated uses in Virginia's rivers and streams is violation of the bacteria standards. Virginia has recently adopted three new bacteria criteria including fecal coliform, E. coli and enterococci. See 9 VAC 25-260-170 for additional information on these new criteria. Agricultural practices appear to be one of the primary sources contributing to the bacteria standards violations. However, urban runoff, leaking sanitary sewers, failing septic tanks, domestic animals and even wildlife can be significant contributing sources.

Results – Lakes and Reservoirs

Virginia has 102 significant publicly owned lakes and reservoirs with an estimated 117,600 total acres. Lakes and reservoirs that are greater than 100 acres and/or serve as a public water supply are considered significant. The total acres are less than previous reports due to the reduction in size of Virginia's portion of Kerr Reservoir and Lake Gaston. Previously, North Carolina's portion of these reservoirs was included in the total size of these two reservoirs. For 2004, 99,829 acres (84.9%) were monitored in Virginia and assessed with sufficient data for at least some designated uses. The remaining acres were evaluated as insufficient data to determine if any designated uses are being met.

Table 1.1-4 presents the results from the 2004 assessment of lakes and reservoirs.

Table 1.1-4 Assessment Results for Lakes/Reservoirs

Degree of Use Support	Water Type	Total Acres *(Rounded to the Nearest Whole Number*	(%)
Supports Uses (EPA Categories 1 and 2)	Lakes (acres)	9,935	**8.4%**
Insufficient Data (EPA Category 3)	Lakes (acres)	17,771	**15.1%**
Impaired (EPA Categories 4 and 5)	Lakes (acres)	89,894	**76.5%**
Total Size	Lakes (acres)	117,600	**100%**

Many lakes were not fully supporting for aquatic life use, primarily due to natural stratification causing dissolved oxygen depletion. Also, exceedences of the fish tissue standard for PCB (Polychlorinated Biphenyls) was a major cause of fish consumption use impairment in lakes and reservoirs.

Results – Tidal Estuaries

An important modification to the 2004 assessment is the inclusion of estuarine benthic and toxic review of water quality. EPA directed Virginia and the state of Maryland to work together to develop a method to assess the random benthic index of biological indicators (B-IBI) collected by the Chesapeake Bay Program. Table 1.1-5 presents the assessment category results from the 2004 assessment of tidal estuaries and includes B-IBI results. Sufficient data was available for assessment of at least some designated uses in 2,525 square miles (98.7%) of the total 2,557square miles of estuarine waters. The remaining square miles were assessed as insufficient data to determine if any designated uses were being met.

Table 1.1-5 Assessment Results for Estuarine Waters

Degree of Use Support	Water Type	Total Square Miles *(Rounded to the Nearest Whole Number*	(%)
Supports Designated Uses (EPA Categories 1 and 2)	Estuary (sq. mi.)	618	**24.2%**
Insufficient Data (EPA Category 3)	Estuary (sq. mi.)	32	**1.3%**
Impaired (EPA Categories 4 and 5)	Estuary (sq. mi.)	1,907	**74.6%**
Total Size	Estuary (sq. mi.)	2,557	**100%**

The leading cause of impairment in Virginia's estuarine waters is violation of the dissolved oxygen standard associated with aquatic life use. Another leading cause of impairment is violations of the fecal coliform bacteria standard associated with shellfish consumption advisories.

Based on limited available information, all of Virginia's 120 miles of the Atlantic Ocean Coastal Waters were evaluated as fully supporting Virginia's designated uses.

Fish Consumption Advisories

As of December 31, 2003 there were 17 fish consumption advisories in Virginia, 10 for PCBs, six for Mercury, and one for Kepone. The Virginia Department of Health issues these advisories. Detailed information can be found in Chapter 6.5.